REMARKS

Reconsideration of the application is respectfully requested in view of the above amendment and the comments that follow. Entry of the foregoing amendment is requested in order to place this application in condition for allowance or in better form for consideration on appeal.

Applicants acknowledge with appreciation the allowability of claims 5, 6, 14 and 15. Claims 23, 29, 30, 32 and 37 have been canceled without prejudice. Claims 1, 9-11, 17, 18, 25, 28, 33 and 38 have been amended to more particularly define Applicants' claimed invention. Support for the amendment of claims 1, 9-11, 17, 18, 25, 28, 33 and 38 can be found at page 20, line 26 through page 22, line 14 of Applicants' specification and original claims 22, 23, 29, 30, 32 and 37.

The final rejection of claims 1, 3, 4, 9-13, 17-25, 27-30, 32-35, 37 and 38 under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 5,073,433) in view of Graham et al. (US 6,432,487) is respectfully traversed.

The primary reference, Taylor et al. discloses a thermal barrier coating comprising zirconia partially stabilized by yttria and having a substantial homogeneous dispersion of vertical macrocracks throughout the coating to improve its thermal fatigue resistance. As noted by the Examiner in the Office Action, Taylor et al. does not disclose "an additional coating thereon that does not include macrocracks". Nowhere does Taylor et al. disclose or suggest a multilayer ceramic, thermal barrier and abradable coating for a gas turbine outer air seal that opposes a blade tip or knife edge, the coating comprising an inner ceramic layer having specifically defined vertical macrocracks distributed throughout and an outer ceramic abradable layer substantially free of vertical macrocracks and having a high speed tip-to-seal wear ratio of 0.1 or less, and the coating having a thickness of at least about 0.2 mm and cyclic thermal shock resistance up to a temperature of at least about 2500°F, as claimed by Applicants.

The secondary reference, Graham et al., adds nothing to make up for the deficiencies of Taylor et al. as a primary reference. Graham et al. discloses a process for applying a vertically cracked ceramic thermal barrier coating to a machine component by applying a plurality of layers of the ceramic thermal barrier coating on the component utilizing a nozzle at a first distance from the component, applying an additional sacrificial outer layer of the ceramic thermal barrier coating of the same chemical composition as the plurality of layers on the component with the nozzle at a second distance from the component, and removing at least some of the outer layers to achieve desired thickness and surface roughness specifications.

Graham et al. discloses only vertically cracked ceramic thermal barrier coatings in general and is silent with respect to an outer layer that does not include vertical cracks and has a high speed tip-to-seal wear ratio of 0.1 or less. Further, in contrast to Applicants' claimed invention, Graham et al. is also silent with respect to ceramic thermal barrier coatings having a thickness of at least about 0.2 mm, the coatings having cyclic thermal shock resistance up to a temperature of at least about 2500°F, and the length and frequency (i.e., number of vertical cracks per linear centimeter of the coating) of the vertical cracks included in the ceramic thermal barrier coatings. While Graham et al. discloses a thin outer layer for finishability to some smoothness by blending with diamond impregnated disks, Applicants' claimed invention provides multilayer ceramic coatings capable of high speed tip rub abradability, i.e., a high speed tip-to-seal wear ratio of 0.1 or less. Nowhere does Graham et al. disclose or suggest a multilayer ceramic, thermal barrier and abradable coating for a gas turbine outer air seal that opposes a blade tip or knife edge, the coating comprising an inner ceramic layer having specifically defined vertical macrocracks distributed throughout and an outer ceramic abradable layer substantially free of vertical macrocracks and having a high speed tip-to-seal wear ratio of 0.1 or less, and the coating having a thickness

of at least about 0.2 mm and cyclic thermal shock resistance up to a temperature of at least about 2500°F, as claimed by Applicants.

Applicants submit that alleged obviousness of the instantly claimed invention must be predicated on something more than it would have been obvious to try adding an outer ceramic abradable layer substantially free of vertical macrocracks and having a high speed tip-to-seal wear ratio of 0.1 or less (in contrast to the sacrificial outer layer of Graham et al.), to a single layer thermal barrier coating having specifically defined vertical macrocracks distributed throughout to arrive at Applicants' claimed multilayer ceramic coatings for a gas turbine outer air seal that opposes a blade tip or knife edge or the possibility that such a particularly defined multilayer ceramic coating would have been considered in the future, having been neglected in the past. See Ex parte Argabright et al. 161 USPQ 703. It is submitted that "obvious to try" is not a valid test of patentability, and patentability determinations based on that as a test are contrary to statute. See In re Mercier 515 F2d 1161, 185 USPQ 774; In re Antonie 559 F2d 618, 195 USPQ 6; In re Goodwin et al. 576 F2d 375, 198 USPQ 1; and In re Tomlinson et al. 363 F2d 928, 150 USPQ 623.

Clearly, it is only by hindsight that the Examiner could impute to the single layer, vertically cracked, thermal barrier coatings of Taylor et al. an outer ceramic abradable layer substantially free of vertical macrocracks and having a high speed tip-to-seal wear ratio of 0.1 or less (in contrast to the sacrificial outer layer of Graham et al.) to arrive at the instantly claimed multilayer ceramic coatings for a gas turbine outer air seal that opposes a blade tip or knife edge, and such hindsight obviousness after the invention has been made is not the proper test. See In re Carroll 601 F2d 1184, 202 USPQ 571.

The final rejection of claim 26 under 35 U.S.C. 103(a) as being unpatentable over Taylor et al. (US 5,073,433) in view of Graham et al. (US

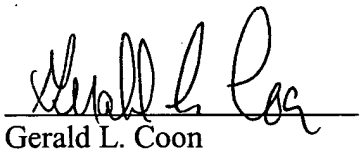
6,432,487) and further in view of Gupta et al. (US 5,403,669) is respectfully traversed.

In view of the amendment of independent claim 11 (claim 26 depends on claim 25 which depends on claim 11) and the above arguments, this rejection is deemed improper and should be withdrawn.

It is respectfully submitted that the final rejections of record are improper and that the application is in condition for allowance. Accordingly, reconsideration and allowance of all claims are courteously solicited.

A response to the Office Action mailed December 29, 2003 was due March 29, 2003. Accordingly, submitted herewith is a petition for an extension of time for three (3) months. Please charge fees/surcharge which may be required by this paper, or credit any overpayment, to Deposit Account No. 16-2440.

Respectfully submitted,



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